

(19) World Intellectual Property Organization
International Bureau



PCT



(10) International Publication Number
WO 2007/017974 A1

(43) International Publication Date
15 February 2007 (15.02.2007)

(51) International Patent Classification:

H03H 9/02 (2006.01) **H03H 9/17 (2006.01)**

H03H 9/13 (2006.01) **H03H 3/02** (2006.01)

(21) International Application Number:

PCT/JP2006/307155

(22) International Filing Date: 29 March 2006 (29.03.2006)

(25) Filing Language: English

(26) **Publication Language:** English

(30) Priority Data:

2005-229815 8 August 2005 (08.08.2005) JP

(71) **Applicant** (for all designated States except US):
KABUSHIKI KAISHA TOSHIBA [JP/JP]; 1-1, Shibaura
 1-chome, Minato-ku, Tokyo, 1058001 (JP).

(72) Inventors; and

(75) **Inventors/Applicants (for US only): ITAYA, Kazuhiko. OHARA, Ryoichi. SANO, Kenya. YASUMOTO, Takaaki. YANASE, Naoko.**

(74) **Agents:** MIYOSHI, Hidekazu et al.; Toranomon Kotohira Tower, 2-8, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 (JP).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

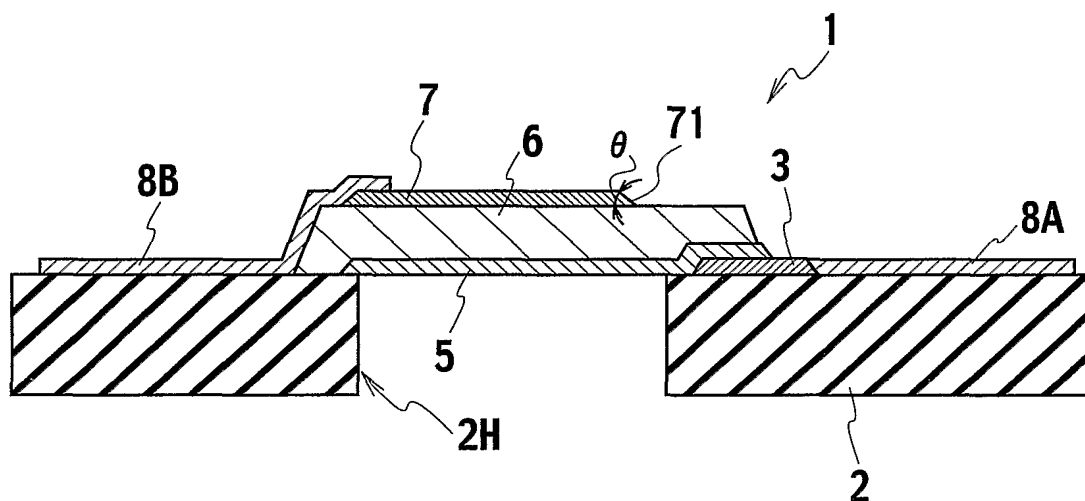
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THIN FILM PIEZOELECTRIC RESONATOR AND METHOD OF MANUFACTURING THE SAME



(57) Abstract: A thin film piezoelectric resonator includes a substrate having a cavity; a first electrode extending over the cavity; a piezoelectric film placed on the first electrode; and a second electrode placed on the piezoelectric film, the second electrode having a periphery partially overlapping on the cavity and tapered to have an inner angle of 30 degrees or smaller defined by a part of the periphery thereof and a bottom thereof.

WO 2007/017974 A1